

REDESCRIPTION OF THE AMPHIPOD, *CALLIOPIELLA*
MICHAELSENI SCHELLENBERG FROM SOUTH AFRICA,
WITH COMPARISON TO A NEW GENUS FROM
THE PACIFIC OCEAN

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(With 3 figures)

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ABSTRACT

Calliopiella michaelseini Schellenberg is redescribed and compared with the Oregonian species, *Calliopiella pratti* J. L. Barnard. The two taxa are found to be distinct generically: a new genus *Callaska* is established for *C. pratti*.

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INTRODUCTION

This redescription of *Calliopiella michaelseini* Schellenberg is from material deposited in the South African Museum, and the comparison with the Oregonian species, *Calliopiella pratti* J. L. Barnard, is from material deposited in the Smithsonian Institution.

Calliopiella Schellenberg

Calliopiella Schellenberg, 1925: 147.

Diagnosis

Head with lateral lobe, rostrum weak. Antennae short, antenna 1 scarcely shorter than antenna 2, peduncles short; accessory flagellum articulate, scale-like, with three to four apical setules; antenna 1 bearing aesthetascs, no calceoli in male. Epistome not produced, upper lip pyriform, not excavate below. Mandibular molars triturative, raker rows and incisors well developed, mandibular palp

ordinary, article 3 scarcely falcate, with B, D, and E setae. Lower lip lacking inner lobes. Inner plate of maxilla 1 fully setose medially, palp 2-articulate, right and left sides alike. Inner plate of maxilla 2 with full oblique facial row of setae. Maxillipeds ordinary. Coxae short but overlapping, coxa 1 smaller than but not hidden by coxa 2, posterior margin of coxa 4 weakly excavate. Morphology of gnathopod 1 similar to gnathopod 2, latter scarcely enlarged, wrists short, poorly lobate, hands elongate, narrow, subchelate, palms short, excavate and armed with four to five giant defining spines, dactyls short, curved, slightly overlapping palms. Pereopods 3-4 ordinary, dactyls short, article 2 of pereopods 5-7 narrowly ovate, increasingly larger from front to rear members, pereopods in general poorly armed. Pleon ordinary, untoothed. Uropods 1 and 2 poorly armed, each ramus with conspicuous armaments all terminal; uropod 3 short, peduncle weakly elongate, rami very short, scarcely longer than peduncle, weakly paddle-shaped, inner larger than outer, armaments sparse. Telson linguiform, with ventral keel, appearing almost fleshy but articulate and movable, cleft or entire. Sexes alike.

Type species

Calliopiella michaelsoni Schellenberg, 1925 (monotypy).

Composition

Unique.

Relationship

Calliopiella differs from all other calliopiids, pontogeneiids and eusirids in the unusually reduced uropod 3 and poor spination on uropods 1-3. In its gnathopods, coxae, body form, accessory flagellum and antennae it bears close resemblance to *Atylopsis* Stebbing but lacks inner lobes on the lower lip. It differs from *Bouvierella* Chevreux in the larger gnathopods almost identical to each other and in the presence of an accessory flagellum. It differs from *Calliopi* Liljeborg in the absence of male calceoli, presence of an accessory flagellum, the slightly elongate peduncle of uropod 3, the poorly lobate wrists of the gnathopods, and complete absence of inner lobes on the lower lip.

The short gnathopodal wrists also distinguish *Calliopiella* from *Cleippides* Boeck, *Apherusa* Walker, *Halirages* Boeck and *Liouvillea* Chevreux.

There is considerable resemblance to *Atyloella* Schellenberg and *Liouvillea* Chevreux, but *Calliopiella* lacks inner lobes on the lower lip, has a much more densely setose maxilla 1 (*Atyloella*), and lacks cusps on the epistome and head.

Uropod 3 of *Bovallia* Pfeffer tends to approximate that in *Calliopiella* but otherwise the presence of an accessory flagellum and the elongate hands on the gnathopods distinguish *Calliopiella*. *Eusiroides* Haswell bears inner lobes on the lower lip, poorly setose maxilla 1 and elongate accessory flagellum. *Harpinioidella* Schellenberg has the first two characters mentioned for *Eusiroides*.

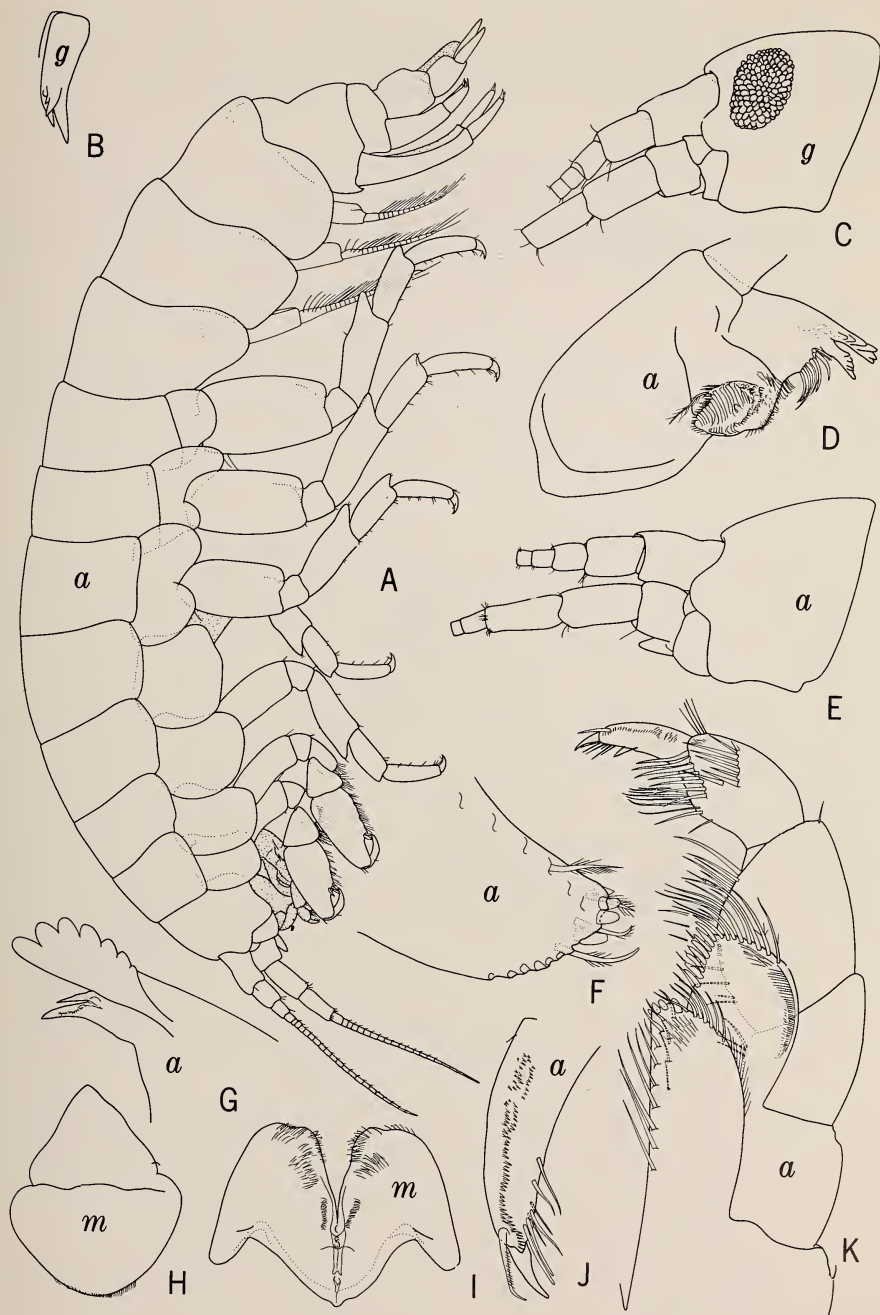


Fig. 1. *Calliopiella michaelseni* Schellenberg. a, female 'a' 10,32 mm; m, male 'm' 10,66 mm; g, male 'g' 7,22 mm. A. Lateral aspect. B. Right lacinia mobilis. C. Head. D. Left mandible. E. Head. F. Inner plate of maxilliped. G. Right mandibular apex. H. Prebuccal, anterior. I. Lower lip. J. Maxillipedal dactyl. K. Maxilliped.

Calliopiella might be an apomorph within the taxal group loosely characterized as the *Paramoera*-*Pontogeneia* complex, but differs from those many species in the peculiar uropods and the specially armed gnathopods.

Calliopiella michaelsoni Schellenberg

Calliopiella michaelsoni Schellenberg, 1925: 147-148; K. H. Barnard, 1940: 451-452, fig. 24; Vader, 1972: 14; Griffiths, 1974: 180-181; Griffiths, 1975: 118.

Material

South Africa, Cape Peninsula, 2 July 1971, female 'a' 10,32 mm, male 'm' 10,66 mm and 2 other specimens (SAM-A15677); Schaapen Island, Saldanha Bay, 23 September 1957, LB 511, general collection, male 'g' 7,22 mm (SAM-A15678) and 2 other specimens from the same locality.

Description

With the characters of the generic diagnosis and accompanying illustrations. Figured female 'a' with 21 articles in primary flagellum of antenna 1, 22 articles in flagellum of antenna 2; aesthetascs of antenna 1 simple, example of formula, proximal to distal on female 'a' = 2-0-2-0 . . . (2-0 × 8)-0, on male 'g' = (1-2)-0-2-0-2-0-2-0-1-0-2-0-2-0-2-0-0-0, parentheses indicating article 1 with one ventral and 2 apical aesthetascs. Right mandibular raker spines six plus one rudimentary spine, article 2 of palp with six setal spines. Cuticle covered with polygons, outlines clear and enclosing patches of densely villose surface, knobs irregularly scattered near bases of appendages, then lined up in rows near middle of appendages, then polygonal outlines lost near apices of appendages with knobs coalesced into striations, latter texture dominant on uropods and antennae. Each of coxae 2-7 with ovate, simple gill, scarcely pediculate. Brood plates very broad, fully setose, setae weakly bifid apically.

Intraspecific variability

Two sets of specimens from different sources indicate strong intraspecific phenotypy, or possible microspeciation:

Set 1: Cape Peninsula, specimens larger, eyes indiscernible, accessory flagellum lacking basolateral setule, right lacinia mobilis less complex (illustrated), gnathopods with only two pairs of spines on palm, article 2 of pereopods 5-7 slightly thinner than in other group, epimeron 2 smaller, uropod 3 lacking apicomedial spine on peduncle, telson entire or scarcely excavate.

Set 2: Saldanha Bay, specimens smaller, eyes well developed, accessory flagellum with basolateral setule, right lacinia mobilis more complex (illustrated), gnathopods with two triads of spines on palm, article 2 of pereopods 5-7 slightly stouter than in other group, epimeron 2 larger, uropod 3 bearing apicomedial spine on peduncle, telson distinctly notched.

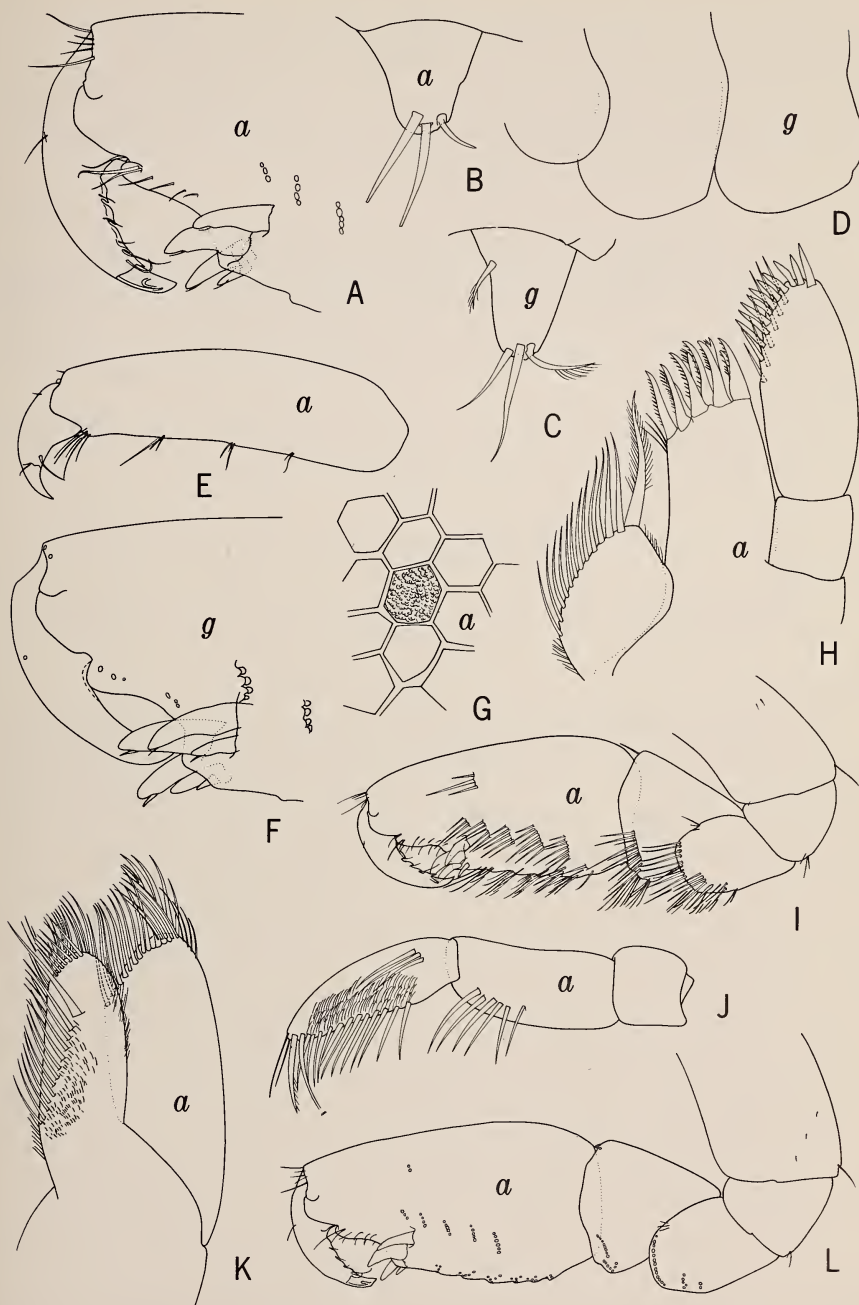


Fig. 2. *Calliopiella michaelseni* Schellenberg. a, female 'a' 10,32 mm; g, male 'g' 7,22 mm. A. Right gnathopod 2. B-C. Accessory flagellum. D. Epimera 1-3. E. Apex of pereopod 3. F. Right gnathopod 2. G. Cuticle of coxa 5. H. Maxilla 1. I. Right gnathopod 1. J. Mandibular palp. K. Maxilla 2. L. Right gnathopod 2, setae removed.

Some of the characters of set 2, the smaller specimens, do not correlate with size in terms of normal amphipodan development, for example, the more numerous gnathopodal spines and better development of accessory flagellum are out of phase with the larger specimens. The species is known to occur with various species of *Patella* so that these may be host-induced differences, though a very detailed study should be made on this problem.

Illustrations

Uropods 1–3 of male 'b' in dissected view magnified to same extent; uropod 3 of male 'g' drawn *in situ*; one row of apical setae omitted on outer plate of maxilla 2.

Distribution

Southern Africa, Cape Agulhas to South West Africa, intertidal, found under limpets, *Patella* spp., apparently obligatorily inquilinous.

Callaska gen. nov.

Etymology

Contrived, feminine.

Diagnosis

Head with weak lateral lobe, rostrum well developed. Antennae of moderate length, antenna 1 shorter than antenna 2, peduncles short; accessory flagellum articulate, scale-like, very short, with three apical setules; antenna 1 bearing aesthetascs, no calceoli in male. Epistome unproduced, upper lip pyriform, not excavate below. Mandibular molars triturative, raker rows and incisors well developed, mandibular palp ordinary, article 3 not falcate, with B, D and E setae. Lower lip lacking inner lobes. Inner plate of maxilla 1 bearing only about four apical setae, palp 2-articulate, right and left sides alike. Inner plate of maxilla 2 with oblique partially facial set of about three setae. Maxillipeds ordinary. Coxae of medium extent, overlapping, coxa 1 smaller than but not hidden by coxa 2, posterior margin of coxa 4 weakly excavate. Morphology of gnathopod 1 similar to gnathopod 2 in female, distinctive in male, wrists short, poorly lobate, hands weakly elongate, narrow in female, broader in male, palms short except on male gnathopod 1, armed with two to three defining spines in female, four to five in male, dactyls short in female, longer in male, scarcely overlapping palms, gnathopod 1 in male larger than gnathopod 2. Pereopods 3–4 ordinary, dactyls of moderate length, article 2 of pereopods 5–7 expanded, ovate, increasingly larger from front to rear members, pereopods well armed (for the family group). Uropods 1 and 2 well armed; uropod 3 of medium length, peduncle elongate, rami subequal to or shorter than peduncle, lanceolate, bearing spines, no setae. Telson linguiform, laminar, movable, unclft.

*Type species**Calliopiella pratti* J. L. Barnard, 1954 (here selected).*Composition*

Unique.

Relationship

Callaska pratti originally was placed in the genus *Calliopiella* but examination of the type species of *Calliopiella* demonstrates adequate generic distinctions. *Calliopiella* is an unusual member of its family group in the loss of armaments on uropods 1–3, and the short rami of uropods 1–3. In terms of uropods 1–3 *Callaska* is an ordinary member of the family but in which male gnathopod 1 is larger

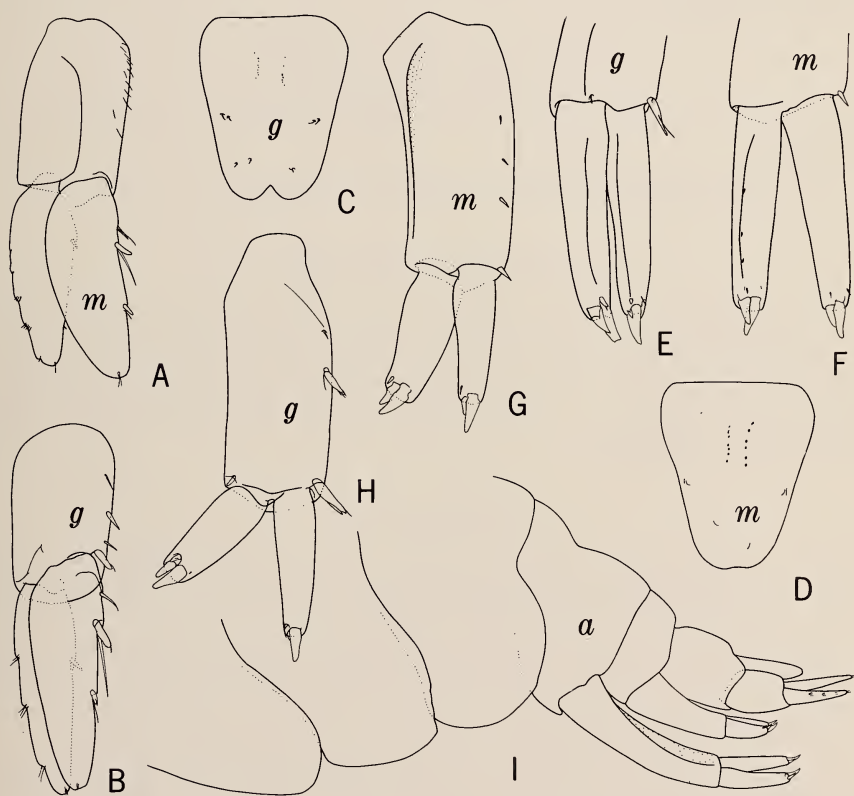


Fig. 3. *Calliopiella michaelseni* Schellenberg. a, female 'a' 10,32 mm; g, male 'g' 7,22 mm; m, male 'm' 10,66 mm. A–B. Uropod 3, left. C–D. Telson. E–F. Uropod 1, left. G–H. Uropod 2 left. I. Pleon.

than gnathopod 2, a feature weakly developed in the allied *Oligochinus* J. L. Barnard from the same coastline. *Callaska* differs from *Oligochinus* in the elongate peduncle of uropod 3 and the uncleft telson, a variable character in the isolated South African *Calliopiella* but of firmer stability in calliopiids from other areas of the world. The short wrists of the gnathopods distinguish *Callaska* from a variety of otherwise similar genera such as *Bouvierella* Chevreux and *Apherusa* Walker. The latter genus also has weak inner lobes on the lower lip and *Bouvierella* lacks an accessory flagellum and has an elongate antenna 1.

Calliopiopus Liljeborg lacks an accessory flagellum and bears inner lobes on the lower lip. *Pontogeneoides* Nicholls bears inner lobes on the lower lip, gnathopod 2 of the male is enlarged and the wrist lobate and the telson is elongate. *Pontogeneia* Boeck and *Pseudopontogeneia* Oldevig have deeply cleft telsons. *Atylopsis* Stebbing has inner lobes on the lower lip and unenlarged gnathopod 1. *Dautzenbergia* Chevreux has enlarged gnathopod 2 in the male and lacks an accessory flagellum.

Callaska pratti (J. L. Barnard)

Calliopiella pratti J. L. Barnard, 1954: 6-7, pls 6-8; J. L. Barnard, 1969: 95, figs 7-8.

Distribution

Coos Bay, Oregon to Goleta, California, intertidal.

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